Phosphorus

Sources Of Phosphorus

Seafood -	tuna, mackerel, pike, red snapper, salmon, sardines, whitefish, scallops, shad, smelt, anchovies, bass, bluefish, carp, caviar, eel, halibut, herring, trout
Meats -	liver (beef, chicken, hog, lamb), rabbit, sweetbreads, turkey, beef brains, chicken, eggs, egg yolk, lamb heart, kidney
Nuts/seeds -	pinon, pistachios, pumpkin, sesame, sunflower, walnuts, almonds, brazil nuts, cashews, filberts, hickory, peanuts, pecans
Vegetables -	chickpeas, garlic, lentils, popcorn, soybeans
Dairy -	cheeses
Grains -	wheat bran and germ, wild rice, buckwheat, millet, oats, oatmeal, brown rice, rice bran, rye, wheat
Miscellaneous -	chocolate, kelp, yeast, bone meal

Roles In The Body

- Bone structure - 80-85% of phosphorus in the body is located in the bones and teeth
- Energy production - (ATP - adenosine triphosphate and ADP - adenosine diphosphate)
- Cell membranes - (as phospholipids)
- Genetic reactions - in DNA - deoxyribonucleic acid and RNA - ribonucleic acid
- Buffering agent, to maintain osmotic pressure

Functions Of Phosphorus

Digestive -	regulates absorption of calcium and a variety of trace elements. Phosphorus in excess has a laxative action
Nervous -	source of adenosine triphosphate (ATP), component of the myelin sheath
Endocrine -	interacts with vitamin D
Blood -	red blood cell (RBC) metabolism
Muscular -	adenosine triphosphate (ATP) needed for muscle contraction
Skeletal -	component of bone and teeth
Immune -	adenosine triphosphate (ATP) for leukocytes
Metabolic -	energy production via phosphorylation reactions
Detoxification -	in liver - via adenosine triphosphate (ATP)

Synergetic Nutrients

Absorption -	sodium, potassium, low calcium diet, vitamin D, parathyroid hormone, high fat diet
Metabolic -	calcium, magnesium, B-complex vitamins (in energy production)

Antagonistic Nutrients

Absorption -	calcium, aluminum, iron, magnesium, vegetarian diets,vitamin D deficiency

Hair Analysis Notes

High Hair Phosphorus:

- An elevated phosphorus level is frequently indicative of excessive protein breakdown of body tissues. As proteins break down, phosphorus is released.
- Phosphorus levels may increase temporarily as toxic metals are being eliminated in the course of a nutrition program.
- Very high phosphorus (greater than 25 mg%) can indicate a serious metabolic disturbance.

Pubic hair samples often show elevated phosphorus readings. This is a characteristic of pubic hair.

Low Hair Phosphorus:

- A low phosphorus level is frequently associated with inadequate protein synthesis.
- Although most diets are adequate in phosphorus, those on low-protein diets or vegetarians may have a low phosphorus intake.
- Zinc is required for protein synthesis. Often a low phosphorus level is associated with a zinc deficiency, cadmium toxicity, or zinc loss. When these imbalances are corrected, the phosphorus level improves.
- A low phosphorus level may be due to poor digestion or assimilation of protein. This may be due to digestive enzyme deficiency, low hydrochloric acid level, or other factors.